



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,863	07/10/2003	Francesco Cerrina	7151	1476

22922 7590 03/10/2006

REINHART BOERNER VAN DEUREN S.C.  
ATTN: LINDA KASULKE, DOCKET COORDINATOR  
1000 NORTH WATER STREET  
SUITE 2100  
MILWAUKEE, WI 53202

EXAMINER

YOUNG, CHRISTOPHER G

ART UNIT	PAPER NUMBER
----------	--------------

1756

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/616,863

Applicant(s)

CERRINA ET AL.

Examiner

Christopher G. Young

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,9-12 and 15-23 is/are rejected.
- 7) ☒ Claim(s) 7,8,13 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2 sheets.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1, 2, 6-10 and 16-19 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 6, 9, 10, 16 and 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Spector et al. (Technique for rapid at-wavelength inspection of extreme ultraviolet mask blanks).

The instant application is drawn to a method for detecting defects in a lithography mask blank, comprising: (a) applying a photoresist layer directly onto a reflective surface of the mask blank; (b) exposing the photoresist layer with radiation having a wavelength and angle of incidence such that the photoresist layer is fully exposed by the combination of direct radiation and reflected radiation from the mask blank in areas of the mask blank in which there are no defects; (c) developing the exposed photoresist layer to remove the fully exposed photoresist from the mask blank; and (d) detecting

Art Unit: 1756

photoresist remaining on the mask blank after development of the photoresist layer to detect defects in the mask blank.

Spector et al. describe, teach and suggests the claimed embodiments of the instant application. A careful review of the entire document shows that an EUV mask blank is inspected by analyzing resist remaining on the reflective surface after exposure to determine areas that have a local decrease in reflectivity. See page 3003, right hand column. Detailed analysis is discussed at pages 3005-3006 under the heading "Direct application of resist".

Based on the teachings of this document, the scope of claims 1, 2, 6, 9, 10, 16 and 17-19 are anticipated.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-5, 11, 12, 15 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spector et al. (Technique for rapid at-wavelength inspection of extreme ultraviolet mask blanks) in view of Somerville et al. (US Patent Number 6,335,531).

The instant application is drawn to a method for detecting defects in a lithography mask blank, comprising: (a) applying a photoresist layer directly onto a reflective surface of the mask blank; (b) exposing the photoresist layer with radiation having a wavelength and angle of incidence such that the photoresist layer is fully exposed by the combination of direct radiation and reflected radiation from the mask blank in areas of the mask blank in which there are no defects; (c) developing the exposed photoresist layer to remove the fully exposed photoresist from the mask blank; and (d) detecting photoresist remaining on the mask blank after development of the photoresist layer to detect defects in the mask blank.

The teachings of Spector et al. are set forth in paragraph 3 above. This document does not discuss the use of fluorescent materials in the resist to assist in the observation process. However, Somerville et al. teach the modification of a resist with a fluorescent material to enhance detectability, with an inspection tool, of any residual resist material after exposure and development. See, for example, the Abstract of the patent. A review of the patent claims shows that many of the same materials utilized as the fluorescent additive in the instant application are claimed in the prior art.

One of ordinary skill in the requisite art would have found it prima facie obvious to include the well known fluorescent materials described by Somerville et al. in the resist composition of Spector et al., and the inspection process of Spector et al. This is motivated by the fact that each document is drawn to inspection of residual resist after exposure and development. Furthermore, the enhanced detectability of the resist with a

Art Unit: 1756

fluorescent material provides motivation to include such a material in the inspection of EUV mask blanks as taught by Spector et al.

***Allowable Subject Matter***

6. Claims 7, 8, 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

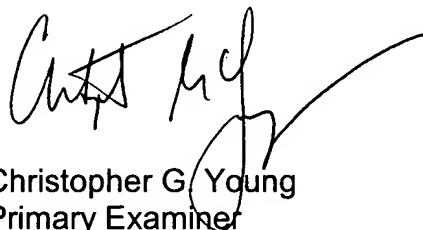
***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher G. Young whose telephone number is 571-272-1394. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1756

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Chris Young', with a long horizontal flourish extending to the right.

Christopher G. Young  
Primary Examiner  
Art Unit 1756

cgy